Michael Aippersbach & Associates
Planning and Development Services

Via U. S. Mail

November 30, 2005

Jeff Thompson, MCP
Net Tech, Inc.
907 Industry Drive
Tukwila WA 98188

Re: Suquamish Tribe Electronic Nation - Mobile Lab Project
U.S. Department of Commerce TOP Grant Program

Dear Mr. Thompson,

Enclosed is a 31-page Project Report. The report includes in addition to the main report a 3-page report (pages 12-14) prepared by Tom Ripley of Egis Real Estate Services whose review covers only a portion of the project and also 15 photos.

In addition to being an experienced report writer, I am familiar with the subject project, having observed it from approximately 2001 through the construction of the tower and the mobile lab's operation.

If anyone has any questions about the report they can reach me at (206) 523-3764, e-mail me at aipp@prodigy.net or fax me at (206) 524-0337.

Sincerely,

Michael Aippersbach

dell/mike/maa proj files/suquamish tower report.dsk:letter to jeff thompson – 11.30.05

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Executive Summary
Evaluation of Suquamish Tribe TOP Grant Project
November 30, 2005

This Executive summary covers the project from October 2000 through the Grant period and up to the current date, November 30, 2005.

Project Objective - Original Narrative (9/14/01): The TOP Grant Project (akaREZNET), once completed, will provide high-speed, wireless, data and communications network spanning the entire reservation which will allow access for Suquamish Tribal Community & members (especially in more remote areas) to the a wide range of educational curriculum, cultural components, the Internet, and E-mail. The means for delivering such access to the tribal community will be through a mobile computer lab which will be deployed according to (yet to be developed) scheduled routes throughout the reservation. Wireless communications throughout the reservation is accomplished by the use of a cell tower. CENCOM wanted to put up their own cell tower(s) in order to provide full coverage to Kitsap County for public safety and have identified the site in Indianola as an ideal site compared to the other sites in the North end of the county. At present time an inter-Local Service Agreement is being drawn up for the Tribe and CENCOM, to construct a cell tower at the Indianola site. CENCOM is using the ADCOMM Engineering Company to engineer and construct their cell towers and they already have performed some preliminary site analysis.

Source: Intertribal Memo from the Director of Information Systems to the Environmental Program Manager, DNR and dated 9/14/01.

History of Project.

Partnership Opportunity. In October 2000 the US Department of Commerce Technology Opportunity Program (TOP) awarded one of ten nationwide grants to the Suquamish Tribe to implement the Suquamish Electronic Nation Project. At the same time, CENCOM, Kitsap County's 911 Agency, was looking for a tower location in the Suquamish area. After finding out about the award of the TOP grant to the Suquamish Tribe, CENCOM contacted the Tribe to see if it would be feasible to join the two projects. The Tribe entered into negotiations with CENCOM in late 2002 and reached agreement on the terms and conditions of a partnership agreement. The joint project was seen as an opportunity to reduce the overall impact of communication facilities in the Suquamish area and save money by sharing the costs and management of a single communications tower. The original intent of the partnership was to construct a 300-foot guyed tower along with the associated electronic equipment, generator and back-up fuel tank. Both entities would install their own respective antennas on the tower to serve their particular interests.

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Project Commencement. Adcomm Engineering Company, a communication engineering consulting firm, hired by CENCOM had already been reviewing multiple potential sites. Upon further discussion with the CENCOM, the Tribe and the Top Grant Project manager, a site was selected on the Tribe's reservation. In the fall of 2002, the Tribe engaged consultants to conduct an environmental review at this location. During this time Adcomm obtained FAA clearance for the proposed 300-foot tower. Based upon preliminary analysis of this specific site, the environmental work of the consultants had concluded that a construction of a communication tower would likely present no significant environmental impacts. The Tribe also requested that the Bureau of Indian Affairs to conduct a cultural resources survey of the site. The Bureau of Indian Affairs found no sacred or historical sites in the area and a low probability of finding cultural resources there. Upon that information, the Tribe determined that the site was appropriate for its project. Once that determination was made, topographical and geotechnical surveys were conducted to assist in the preparation of preliminary architectural and engineering plans for the communication facility.

Negotiations on the Memorandum of Understanding between the two governments concluded in late November 2002. The Tribal Council approved the memorandum of understanding shortly thereafter and forwarded the agreement to the Kitsap County Commissioners. In mid-December of 2002, the Kitsap County Commissioners, after giving required public notice of its workshop and regularly scheduled meeting, discussed and approved the memorandum. At the request of an individual County Commissioner, notice of the tower was sent to nearby property owners. The property owners commented negatively to the proposed tower, and in response the Tribe and CENCOM evaluated more than a dozen alternative sites for the project. NOTE: The process of locating communication towers must consider both technical (i.e., coverage considerations) and financial considerations (i.e., a willing landowner, acceptable leasing structure, relatively easy access, utility availability, etc.). Although a potential site may achieve the technical (coverage) objectives, it may not meet the financial (cost) objectives and vice versa. The examination of multiple sites (and therefore the costs associated with that examination) cannot be eliminated. And when political considerations (the number local residents either impacted or believed they are impacted, the aesthetics of the tower type selected, etc.) are added, the process often becomes complicated (and costly).

Also in response to the negative comments, the Tribe and CENCOM conducted a balloon test at the site to analyze the potential visual impact of the proposed communication tower. The examination of alternative sites and the balloon test led to a decision to move the tower to a second location, approximately 800 feet to the southwest of the original site. The Tribe instructed the environmental consultants expand their environmental review to include the new site. Upon their expanded review, the consultants determined again that the communication facility at the second site would likely present no significant environmental impacts. Also in response to the nearby resident's complaints, the Tribe hired an additional communications engineering company to evaluate the height needs of the tower to obtain the necessary coverage. Their report indicated that a

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400-foot tower was needed and that reducing it to 200 feet (the limit under the County's tower regulations) would not have provided the necessary coverage for the Tribe's needs. The 300-foot tower height was deemed adequate, but not optimal.

As with original site, the second site required another set of topographical and geotechnical surveys so that another new set of construction plans could be developed for the facility at the new location. Both Tribe and CENCOM proceeded forward with preparation of construction plans to build the facility. As construction plans were being refined, work began on obtaining bids for the project.

In response to the negative comments expressed by the nearby residents, Tribal and CENCOM representatives in a public outreach effort conducted public meetings and made telephone contacts beginning in January 2003 and through September 2003. However, the public outreach effort and information supplied failed to satisfy the nearby residents enough so that they would withdraw their objections to either the first or second location. As CENCOM had several other communication facilities to be constructed in addition to the Suquamish site, construction plan preparation activities had continued during the outreach efforts.

While the preparatory work on the development of the construction plans was accomplished, the nearby residents took several actions. They initially filed a complaint with the Kitsap County Commissioners objecting to CENCOM's efforts. The nearby residents asserted that the proposed tower was obligated to follow the County's approval procedures for a communication tower. Their argument was that because the project was funded in part by the County, that therefore CENCOM could not ignore County regulations limiting a tower height to 200 feet. However, CENCOM countered that the site was not under the County's jurisdiction (it was Tribal land under the sovereign Tribal government) and therefore did not require County land use approval. In addition, one of the Kitsap County residents subsequently filed an informal complaint with the Federal Communications Commission (FCC) in July 2003 that alleged irregularities in the environmental review of the project. They suggested that the project required the preparation of an Environmental Assessment under NEPA rules because of their belief in the presence of endangered and protected species in proximity to the site and also that the project would not be in compliance with the Migratory Bird Treaty Act because the tower would create significant birdkill. Although the Tribe's communication system was not FCC licensed, their partner CENCOM was using a FCC licensed communication channel and therefore CENCOM was required to respond to the FCC complaint. To address the objections raised in the FCC complaint that included both environmental impact objections and compliance with the Migratory Bird Treaty Act, the Tribe asked their environmental consultant to evaluate the potential for birdkill. In addition, they also joined CENCOM in their discussions with both the State's Department of Fish & Wildlife (WSDFW) and the United States Department of Fish & Wildlife (USDFW) regarding potential birdkill even though there is no recorded evidence of birdkill in Kitsap County,

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Washington. During this same time period, CENCOM attempted to work through the expressed legal objections with the County's Prosecuting Attorney's office.

The County's Prosecuting Attorney's office determined that the project must comply the County's State Environmental Policy Act (SEPA) regulations so an Environmental Checklist was prepared for the project. During this time, however, CENCOM had also prepared a response to the FCC complaint and subsequently in August 2004 received a copy of letter from the FCC to the complainants indicating that the complaint to the FCC had no basis in fact and that CENCOM (and the Tribe) could proceed with construction of the facility. Site preparation activities and utility trench preparation began in late summer of 2004.

When the FCC complaint by the nearby residents failed, they subsequently filed a lawsuit in Kitsap County Superior Court in October 2004 attempting to stop the tower from being constructed until such time as the civil suit could be heard. The County's Prosecuting Attorney's office on behalf of CENCOM, attempted, but failed to obtain a dismissal of the lawsuit. The presiding judge placed an injunction on the project prohibiting any further construction work. All further construction work on the site by the contractor ceased in October 2004. Based on that action in November 2004 left an undefined sense of when the project might again proceed, the Tribe exercised their right to terminate the partnership agreement with CENCOM who were now burdened by a political and legal quagmire. After some negotiation, the partnership was dissolved.

To quickly move the project along to fruition, the Tribe then decided to take on the task on constructing and managing the communication tower as an owner. The Tribe's Project Manager along with a project architect and their newly hired project/leasing agent, Egis Real Services, and after consulting with the tower manufacturer, determined that the taller, 400-foot tower, could be constructed using the same guy-wire anchor locations as was designed for the 300-foot tower. Another balloon test was conducted in June 2005 to determine if there was significant visual impact using a 400-foot tower instead of a 300-foot tower. No significant impact was noted during the balloon test. After that, the project moved forward without any further legal issues delaying the tower construction.

Although the survey and geotechnical surveys were sufficient, new construction plans were needed for the 400-foot tower (See photo exhibits 1-6), equipment shelter (See photo exhibit 7), and the emergency generator and propane fuel tank (See photo exhibit 8). Utility needs (power and telephone) were determined and the necessary coordination began. A second FAA clearance was ultimately obtained for the 400-foot tower. Bid documents were prepared and bids solicited and were awarded to Turnure Telecom LLC. The continuation of the construction of the communication facility began in April of 2005 and the project was operative on June 30, 2005.

Concurrently, during the portion of the project aimed at getting a tower erected, an experienced consultant in the communications field (Egis Real Estate Services) together

with the Grant Project Director and various members of the Tribe organized into various teams to go over the other portions of the project. This included refining the project concept (vision) that included program needs and the mobile lab and other necessary tools to operate the program. Much of this parallel effort is detailed in the attached supplemental project report prepared by Tom Ripley, Egis Real Estate Services. And in addition during the latter portion of the project and prior to its completion an audit was conducted.

How the Project Went.

Overall, the project went very well. However, the project as originally conceived did encounter three (3) major challenges: (1) Erecting the tower with CENCOM as a partner, (2) determining the necessary tower height to achieve the desired coverage for the intended target area, and (3) the limitations of the initial design of the mobile lab including necessary equipment not included in the grant. The were a number of other challenges which were more minor in nature, but nonetheless required additional funds and time to solve.

The difficulty and hurdles faced in erecting the tower are well documented in the History section of the report. The coverage challenge was a combination of issues: problems of topography and the areas of thick tree cover in largely a rural setting and to some extent achieving the necessary tower height. Receiving and transmitting signals in the Pacific Northwest with its varied topography - valleys, hills - and thickly forested areas can be a daunting task as the dispatch function for emergency service providers -911, etc. - often discover. While the mobile lab with its telescopic antenna works well in most areas of the reservation, some sites still are problematic, i.e. they have poor signal strength. An additional repeater station (tower) is the likely solution, but additional funds and time are needed get the second tower up and operating.

Some of the limitations of the initial design - equipment or components not included in the grant - are partially documented in the attached report from Egis Real Estate Services. The lack of equipment created challenges to the budget and timeframe to complete the project. Some of these are still being addressed.

However, there were a number opportunities that the Tribe members responded very positively to regarding the design of the mobile lab and some of the teaching tools. These include improvements that were focused on both the educational and cultural objectives of the project. For example, the layout of the interior of the lab (See photo exhibits 11-13) was modified in several ways that allowed for an expansion of computer stations from 9 to 13 (e.g., the seats in the cab portion of the vehicle were replaced with swivel types to add additional stations). Other small modifications were accomplished using teams of tribal members (artisans, elders, teachers, etc.) or other tribal resources such as the school district. For example, the interior was enhanced using materials with colors that symbolized the water (flooring), the carpeted walls (the forest), and the ceiling

(the sky) and reinforces cultural points. The materials themselves were quite functional as well. The flooring material (a rubber-based flooring instead carpeting) is good for high traffic and still quiet. The carpet walls allowed for the use of Velcro on various graphic or text items to post on the walls. The ceiling was carpeted aiding in the sound dampening. A fern pattern (Tribe cultural symbol) was added to the panel that disguised the interior lighting (indirect). The door to the bathroom was covered with a "white board" allowing the students or the instructor to write information where there is limited wall space (See white door in photo exhibit 11). The exterior of the mobile lab was painted to include both educational and cultural information (including a website address) and the name of the mobile lab in both English and the Tribe's Native language (see photo exhibits 9-10). Credits for the various agencies and organizations who participated in the program were acknowledged at the rear exterior of the mobile lab.

Other features were added to enhance the function of the mobile lab. For example, a bathroom was added that is heavily used and if not included would have required students to leave the lab and possibly become distracted so that they did not return quickly (See photo exhibit 14). The bathroom was equipped with a wheel chair lift for the handicapped (See photo exhibit 15). A wireless microphone was added for hard-of-hearing students. Each station is equipped to play DVDs. A second monitor was added for convenience of the instructor (who maybe facing in the opposite direction from the monitor the students are viewing). The Tribe paid for these improvements because the budget of the Grant did not allow for them. The importance of these much used and necessary improvements became apparent after many discussions with teachers, the School District representatives, tribal artisans, and others while refining the mobile lab concept.

Another smaller challenge was the software arrangement and cooperation with the local school district. The initial agreements were conducted in 1999-2000, and as with many organizations, the combination of either turnover or faded recollections of what was intended was and is taking time to reconstruct. Initially, after the project was started, it was discovered that the direct access to the school district's software via the network was not forthcoming. Only limited software was available from the school district. Network access is needed for most of it.

In summary, the overall project went well and the Tribe overcame the limitations of the original mobile lab with creativity to greatly improve the functionality and operation of the mobile lab. The excitement generated by the mobile lab has created a flurry of interest in creating word (language) games, bi-lingual talking books, programs, software which will expand the educational and cultural opportunities for the school-aged tribe members and some of the adults as well. Note that in terms of the Tribe's language or word games, not only will the visual characteristics of the word be visible (spelling), but also the audio content of the word heard (how it is pronounced or sounds). Currently, a virtual "longhouse" program is being developed which will take its place among the array of educational and cultural opportunities for learning. In addition, some further work is

being done in the area of providing a "bulletin board" for disseminating information (cultural or current events, news, newsletter, etc.) of interest to all tribal members. The "longhouse" will enable those members of the Tribe (school-aged or otherwise) access learning opportunities from remote locations and not being required to be in a school (classroom) environment.

Lessons learned.

There were a number of issues and challenges this project faced as it moved towards completion. The lessons learned could be summarized as follows:

- Make certain that the Tribal staff assigned to the project can devote adequate time to supervise and coordinate as necessary to fulfill the project objectives. For example, the Director of Information Systems was too heavily burdened with ongoing departmental tasks and unable to devote the time necessary to direct the environmental review efforts. Time and money not budgeted was spent on trying to determine which set of environmental standards the review was supposed to address - the Tribe's interests or in this case, the National Environmental Policy Act (NEPA).
- Evaluate a potential partner as to vulnerability to political and legal attacks particularly when both partners are operating within differing political and governing frameworks. The Tribe's political and legal framework differed considerably from that of CENCOM's. Determining a suitable path through those frameworks added considerably more time and money to the completion of the project. NOTE: However, in fairness to the initial decision to partner with CENCOM, the Tribe did not have the same financial capability at that time as it does today. The mutual benefits of partnering when the project first began (approximately 5 years prior to the beginning operation of the facility) may have been more attractive than would seem today.
- Attempt to determine early on what are the potential roadblocks to the meeting the project schedule and discuss alternatives should those obstacles be realized. Both the Tribe and CENCOM made assumptions about approaches to public participation without careful consideration of the schedule impacts should they experience strong public resistance. The realized public resistance proved to be a significant factor in the project completion schedule.
- Discuss with partner (if the decision is to have a partner) the parameters the Tribe will want to operate within (e.g. issues of sovereignty, development and/or environmental policies, public disclosure, etc.).
- Coordination between partners, consultants, and differing governing entities or agencies takes time to perform and document and the schedule and budget must be developed to account for the necessary coordination. Although, it was out of the Tribe's or CENCOM's control, the inability of those in the Federal agencies to give clear direction to the project staff or consultants and later the changes in staffing for those agencies consumed considerable additional time and money.

- See the attached report from Egis Real Estate Services regarding the components and equipment omitted from the Top Grant provisions (e.g., servers, printers, headsets, etc.).
- Although not part of the Top Grant scope, it was determined that the mobile lab can easily become a command post for emergency preparedness. The mobile lab's power unit (AC/DC) with backup generator, computer stations, network and mobility with some modifications would work well in emergency situations.
- Attendance at nation-wide seminars (especially those of the Federally funded National Indian Association -NIA) on Indian education are important opportunities for those who not only work directly on developing school curricula for Tribal educational, but those who are managing those local educational functions to better understand what is available and what to support for their tribe.
- Conducting an audit during the scheduled end of a project created additional time conflicts. It would have been better from a project completion perspective to conduct such an audit after completing the project (or that phase of the project) instead of during the normally challenging time when a lot of attention is going towards addressing the myriad of necessary project details.

Additional positives about the project.

- Project provides a high-speed, wireless data and communication network and other educational and cultural resources to members of the Tribe
- The type of guyed tower selected with the 5-foot wide face minimizes visual impact to the immediate area. (NOTE: Although it minimizes the visual impact, some of the staffing who review proposed communication towers in the USDFW agency believe that a guyed tower - although unproven at his point - is a significant contributor to birdkill.)
- Project preserves site environment. The project was designed to minimize the removal of vegetation from the site to accommodate the communication facility.
- Project was constructed in a location that does not impact nearby wetlands as the initial location had the potential to do.
- Project allowed the creativity of the Tribe members with their particular talents and interests to work on teams to enhance the features of the mobile lab reinforcing both educational and cultural objectives.
- Allows for closer coordination between the School District and the Tribe regarding educational progress of the students who are members of the Tribe.

What was left out that should have been included?

The following features of the project would have been of benefit:

- A more considered public relations/public notice (review) process. One of the major problems for the project was both the resistance of the nearby residents

(only a handful) and their ability to delay or otherwise thwart the dual tower objectives (Tribe and CENCOM) of the project. Although this is not an issue easily addressed - to disclose or not to disclose project information - i.e., at least a potentially objectionable portion of the project - the result of not articulating an agreed upon plan to deal with this issue or at least having a mechanism to deal with it should it arise opens up the possibility of additional expense and delay of the project schedule.

- A discussion of any potential liabilities that each partner (if a partner is part of the project) brings to the project in addition to the logic of the mutual benefit.

The following pages (pages 12-14) of the report contain a 3-page supplemental project report prepared by Tom Ripley and 15 photo exhibits of the project.

Attachment: Tom Ripley Supplemental Project Report (Project Period: 09.15.02 through 12.15.04)

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PROJECT PHOTO EXHIBITS

Exhibit 1	View of tower components (on ground)
Exhibit 2	View of tower base
Exhibit 3	View of partial tower erection
Exhibit 4	View of upper tower portion
Exhibit 5	View of guy anchor (partially constructed)
Exhibit 6	View of tower fully erected
Exhibit 7	View of equipment shelter
Exhibit 8	View of propane tank & backup generator
Exhibit 9	View of mobile lab (side view)
Exhibit 10	View of mobile lab (side view)
Exhibit 11	View of mobile lab (interior)
Exhibit 12	View of teacher's station
Exhibit 13	View of teacher's large display (monitor)
Exhibit 14	View of bathroom (interior)
Exhibit 15	View of wheel chair lift (interior)

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Supplemental Executive Summary
Evaluation of Suquamish Tribe TOP Grant Project

This project review covers from 9/15/02 until 12/15/04. We were hired as an independent evaluator of the Suquamish TOP Grant Project due to our experience in the communications industry, including tower construction and network and wireless communications. We were hired after the project was well underway, so our review will cover what we have been able to witness during the time of our coverage and on historical documentation.

Scope of Work Services and schedules of deliverables to be provided by our firm related to the TOP grant project is as follows:

A. Conduct on-going project evaluation to determine goal assessment, community impact, identify barriers and resources.

B. Prepare and deliver interim written evaluation and/or oral reports to the Suquamish Tribal Council.

C. Prepare and deliver a final written report upon project completion for distribution to Tribal Council and U.S. Department of Commerce.

Project Detail

The TOP Grant Project represents an important set of goals for the Suquamish Tribe and provides many tools to meet those goals. While the project is moving along (and at the time of this publication has been completed), there are a number of areas we believe provide for lessons to be learned that can be beneficial for others attempting this same type of project.

Particular successes to date (by 12/15/04) include the design, selection and purchase of the mobile lab. The mobile lab is already in use (although not connected to the Internet or school district resources). It has 12 computer workstations, a teacher's station, a network server and 2 printers. It looks very professional and inviting. The community has received it warmly and it is a well-used tool for the tribe. The design and selection of this included input from multiple tribal departments, students, tribal members and school district officials. The high quality final result of the mobile lab is a testament to the process of collective, inclusive effort.

There are a number of problems for this project and lessons to be learned. The problems for this project began early on. Shortly after award of the project, two of the primary key personnel left the organization. When they left, a good deal of information about the project was lost and the people who had the vision and passion to move it forward were gone. It also brought into question to the tribe the desire to complete the project. Due to the important goals of the project, the Tribal Council repeatedly approved continuing the

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project. There was an interim Project Director who helped establish the relationship with the County as a partner and then the IT Director was named as the Project Director. The attempt to use existing staff to fill the Project Manager position proved to be problematic. Without the project, existing staff are normally heavily taxed with tasks. For the IT Director, adding the role of TOP Grant Project Manager was too much. This additional work created problems for the entire IT department and didn't provide for a person who could focus enough on the project. The project became stalled for almost 2 years. Therefore, the Suquamish Tribe made the decision to hire an outside source to manage the project. Once this was done, the project moved forward.

The primary problem the project faced once it started moving forward was the resistance of the neighbors to the project. A few of the neighbors presented strong opposition to the project. The complexity of the project with the various partnering groups involved required a high degree of coordination from the project manager to insure that all interests were being represented on all the issues. The project manager for the tribe worked in a professional and ethical manner on all aspects of the project, choosing inclusion rather then exclusion of all interested parties. Unfortunately a few local non tribe residents had an agenda of blocking any project that involved the tribe without regard for whether or not that project might benefit the community as a whole. Having the county involved as a partner added to the complexity because decisions were being made from a political standpoint based on what the local politician may have at risk in the decision to rather then what might be best for the community.

After repeated delays caused by the ability of the resisting neighbors to affect the county's ability to proceed, it became clear to the tribe that the project would be stalled indefinitely, certainly beyond the already extended end date of the TOP Grant of June 30, 2005. So, in November of 2004, the tribe decided to discontinue it's partnership with the county for the construction of the tower and to build the tower themselves, funding the loss of the county's financial contribution to the partnership with their own money.

Other problems incurred came about due to an incomplete original design. While the original designers did a good job with the vision and overall project components, some key missing items were identified.

- There was no central file management originally designed. For a self-sustaining mobile network, this is an important piece.
- No printers were included. A learning lab without printers is incomplete.
- No personal headphones were included. In a compact learning environment like the mobile lab, headphones are very important. This is especially true for Native Americans as they tend to experience a high frequency of hearing problems.
- No money for software was included. The perception was that the local school district would provide the software, but it turns out the only licensing available to the tribe is where the tribe would be connected over the network to the school district. No locally installable software was provided. Even without the problems with the connectivity the tribe has had due to the delay in building the tower,

there is likely to be numerous times the lab may be unable to connect to the district resources and the tribe will want to use additional software not provided by the school district.

- The original Mobile Lab didn't include a design for a fully functional, wheelchair accessible bathroom.
- The grant designed had many installation costs not included. For many items in the grant, there was no money included for installation. It appears that it was originally envisioned that tribal staff would do the installations. For many of the items, though, such as specialized antennas, equipment located on the tower, and other specialized items, trained, experienced staff needed to be hired to perform these tasks.

Lessons Learned

Here are some of the lessons that should be learned from this project:

- Don't use existing staff to manage a project of this scope. Hire people that can focus solely on the project and not get pulled away for other tasks or political reasons.
- As the tribe had the ability and desire to complete the project on their land without the assistance of any outside group I would suggest that in considering projects of this type in the future information should be shared with all who have an interest but to keep non tribal groups in a position of interested parties but not partners.
- Perform a full network design prior to moving forward. File servers, printers, headphones, print servers, KVM switches, and all needed network devices should be included.
- For any mobile lab, substantial effort should be put into identifying software and providing the funding for the software.
- Make sure a mobile lab includes a fully functional, wheelchair accessible bathroom.
- Fully fund all installation costs. Don't assume local staff will have the skill sets, or time, to perform the installations.

When the tribe decided to build this project themselves, they decide to find a firm that would be able to manage the construction of this project. Due to our experience with the project, our experience with communication systems, and our experiences as a construction management company, the tribe decided to hire our company as the construction management firm. Due to this, we have stepped aside from the final evaluation of this project. Another firm will perform this task for the final evaluation.

Tom Ripley

Director of Engineering
Egis Real Estate Services